

FIG.1

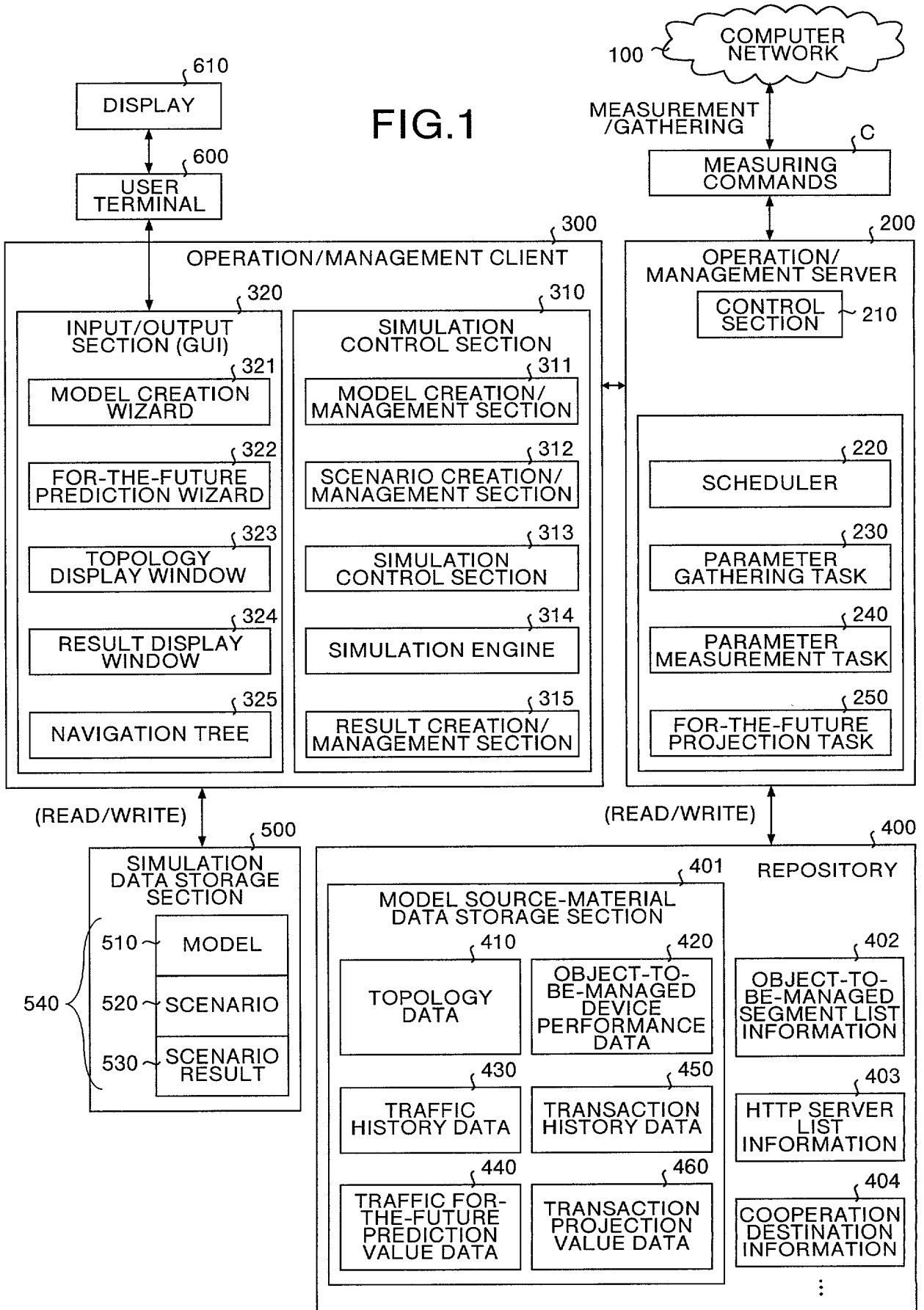


FIG.2

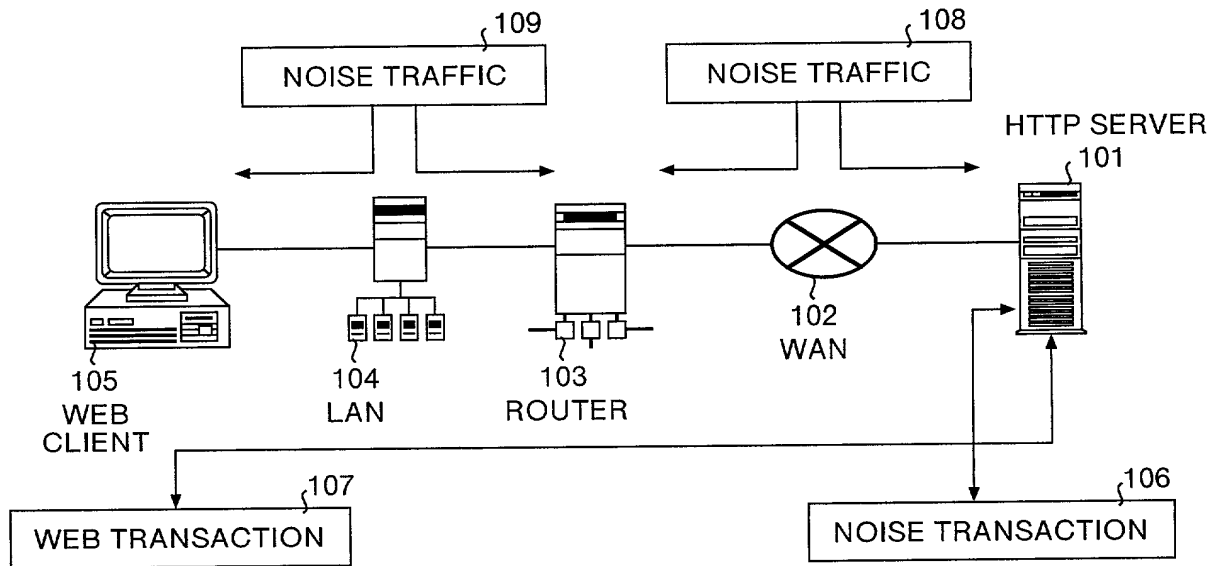


FIG.3

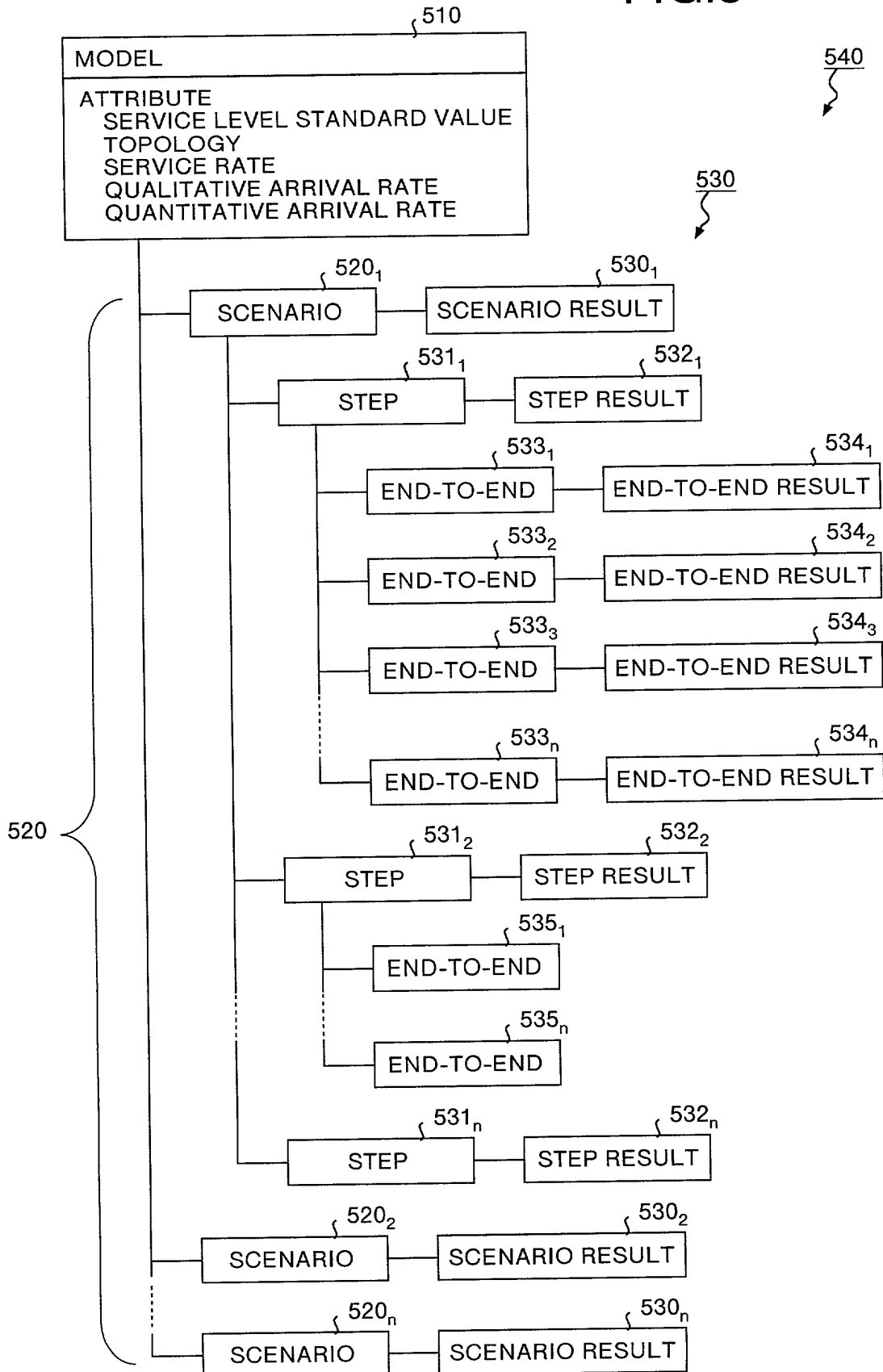


FIG.4

230 SERVICE RATE

	BAND	PROPAGATION DELAY
LAN104	100Mbps	0.8 μ sec/Byte
WAN102	1.5Mbps	0.9 μ sec/Byte
	THROUGH-PUT	
ROUTER 103	0.1m sec/Package	
WEB CLIENT 105	10Mbps	
HTTP SERVER 101	10Mbps	

231 QUANTITATIVE ARRIVAL RATE

	AVERAGE ARRIVAL INTERVAL	AVERAGE PACKET SIZE
NOISE TRAFFIC 108	0.003 sec	429byte
NOISE TRAFFIC 109	0.0015 sec	512byte
	AVERAGE ARRIVAL INTERVAL	AVERAGE TRANSFER SIZE
NOISE TRANSACTION 106	5 sec	200KByte
WEB TRANSACTION 107	30 sec	300KByte

232 QUALITATIVE ARRIVAL RATE

	CLIENT'S MACHINES NUMBER	USED-PERSONS NUMBER
WEB CLIENT 105	ASSUMED AS BEING ONE PIECE (USER DESIGNATES FROM GUI)	ASSUMED AS BEING ONE (USER DESIGNATES FROM GUI)

FIG.5

410



411

SOURCE SEGMENT	DESTINATION SEGMENT	ROUTE ID
10.10.10.0	10.34.195.0	3
10.10.12.0	10.34.194.0	4

412

ROUTE ID	SEQUENTIAL ORDER	COMPONENT ID	COMPONENT TYPE
3	1	11	ROUTER
3	2	12	LAN
3	3	13	ROUTER

FIG.6

420

421

COMPONENT ID	HOST NAME	THROUGH-PUT	INTERFACES NUMBER	INTERFACE COMPONENT ID
11	bigfoot	0.1m sec/Packet	4	5
12	puppet	5m sec/Packet	3	6

422

COMPONENT ID	ROUTER COMPONENT ID	IP ADDRESS	MAC ADDRESS	RATE OF INTERFACE
5	11	10.34.191.254	00:00:00:00:00:01	10M bps
5	11	10.34.191.254	00:00:00:00:00:02	100M bps
5	11	10.34.191.254	00:00:00:00:00:03	1G bps
5	11	10.34.191.254	00:00:00:00:00:04	1.5M bps

FIG.7

DATE	TIME	NETWORK	AVERAGE ARRIVAL INTERVAL	AVERAGE PACKET SIZE	430			
2000/04/05	13:00-14:00	10.34.195.254	0.003 sec	513 Kbyte				
2000/04/05	14:00-15:00	10.34.195.254	0.002 sec	413 Kbyte				
2000/04/05	16:00-17:00	10.34.195.254	0.001 sec	313 Kbyte				
2000/04/05	17:00-18:00	10.34.195.254	0.004 sec	213 Kbyte				

NETWORK	PROJECTION TIME LENGTH	AVERAGE ARRIVAL INTERVAL PROJECTION VALUE IN TERMS OF sec			AVERAGE PACKET SIZE PROJECTION VALUE IN TERMS OF Byte			440
		MAXIMUM	AVERAGE	MINIMUM	MAXIMUM	AVERAGE	MINIMUM	
10.34.195.254	3 MONTHS	0.008	0.010	0.012	413	313	213	
10.34.195.254	6 MONTHS	0.007	0.009	0.011	423	323	223	
10.34.195.254	12 MONTHS	0.006	0.008	0.010	433	333	233	
10.34.195.254	15 MONTHS	0.005	0.007	0.009	443	343	243	
10.34.195.254	18 MONTHS	0.004	0.006	0.008	453	353	253	
10.34.195.254	21 MONTHS	0.003	0.005	0.007	463	363	263	
10.34.195.254	24 MONTHS	0.002	0.004	0.006	473	373	273	
10.34.100.254	3 MONTHS	0.008	0.010	0.005	423	323	223	
10.34.100.254	6 MONTHS	0.007	0.009	0.004	433	333	233	

FIG.8

450

DATE	TIME	HTTP SERVER	AVERAGE ARRIVAL INTERVAL	AVERAGE TRANSFER SIZE
2000/04/05	13:00-14:00	10.34.195.194	3 sec	2 Kbyte
2000/04/05	14:00-15:00	10.34.195.194	2 sec	3 Kbyte
2000/04/05	16:00-17:00	10.34.195.194	1 sec	4 Kbyte
2000/04/05	17:00-18:00	10.34.195.194	4 sec	1 Kbyte

440

HTTP SERVER	PROJECTION TIME LENGTH	AVERAGE ARRIVAL INTERVAL PROJECTION VALUE IN TERMS OF sec			AVERAGE TRANSFER SIZE PROJECTION VALUE IN TERMS OF Byte		
		MAXIMUM	AVERAGE	MINIMUM	MAXIMUM	AVERAGE	MINIMUM
10.34.195.194	3 MONTHS	3.0	4.0	5.0	4.1	3.1	2.1
10.34.195.194	6 MONTHS	2.8	3.8	4.8	4.2	3.2	2.2
10.34.195.194	12 MONTHS	2.6	3.6	4.6	4.3	3.3	2.3
10.34.195.194	15 MONTHS	2.4	3.4	4.4	4.4	3.4	2.4
10.34.195.194	18 MONTHS	2.2	3.2	4.2	4.5	3.5	2.5
10.34.195.194	21 MONTHS	2.0	3.0	4.0	4.6	3.6	2.6
10.34.195.194	24 MONTHS	1.8	2.8	3.8	4.7	3.7	2.7
10.34.200.100	3 MONTHS	2.0	3.0	4.0	3.3	2.2	1.8
10.34.200.100	6 MONTHS	2.1	3.1	4.1	3.1	2.0	1.6

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FIG.9

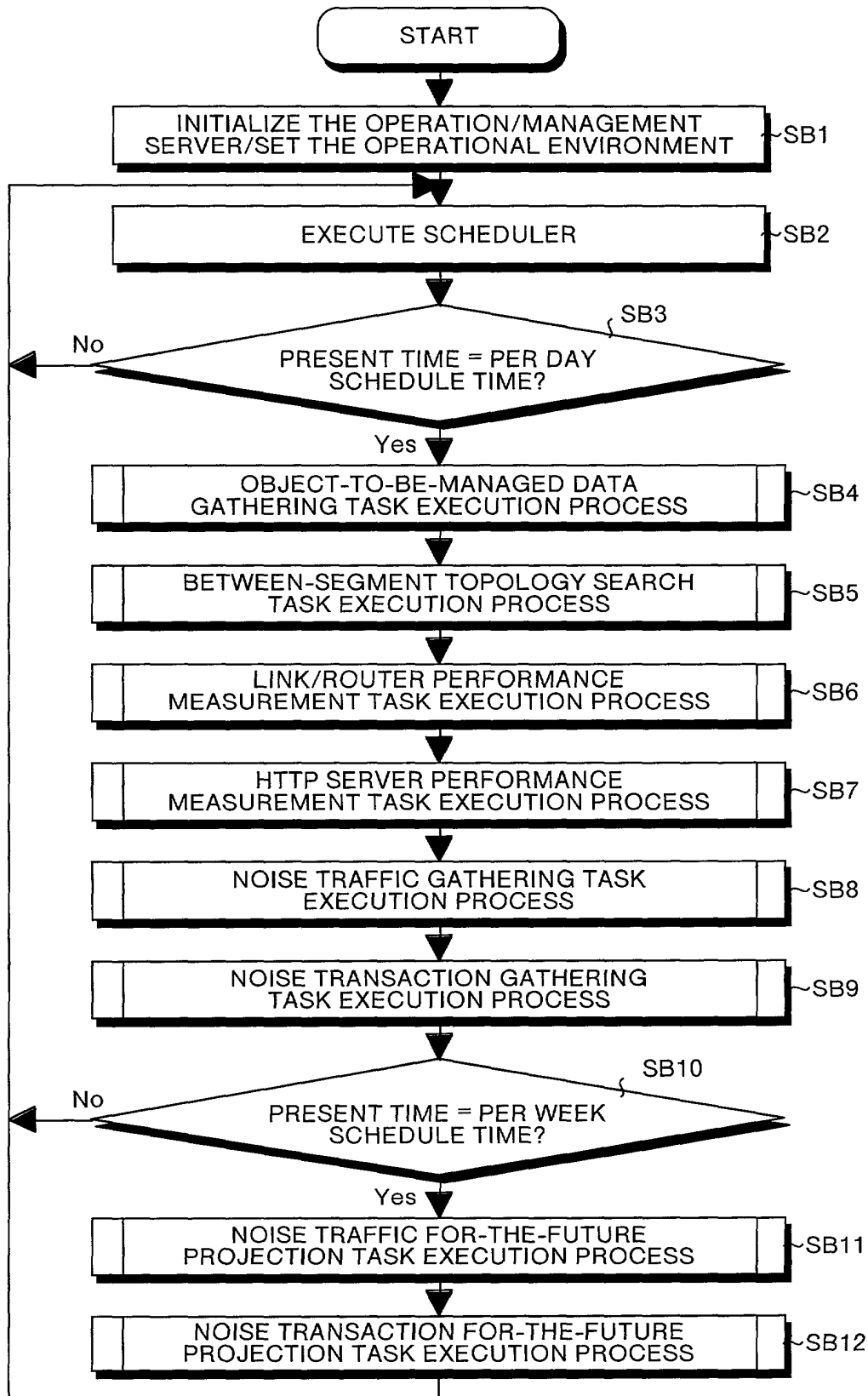
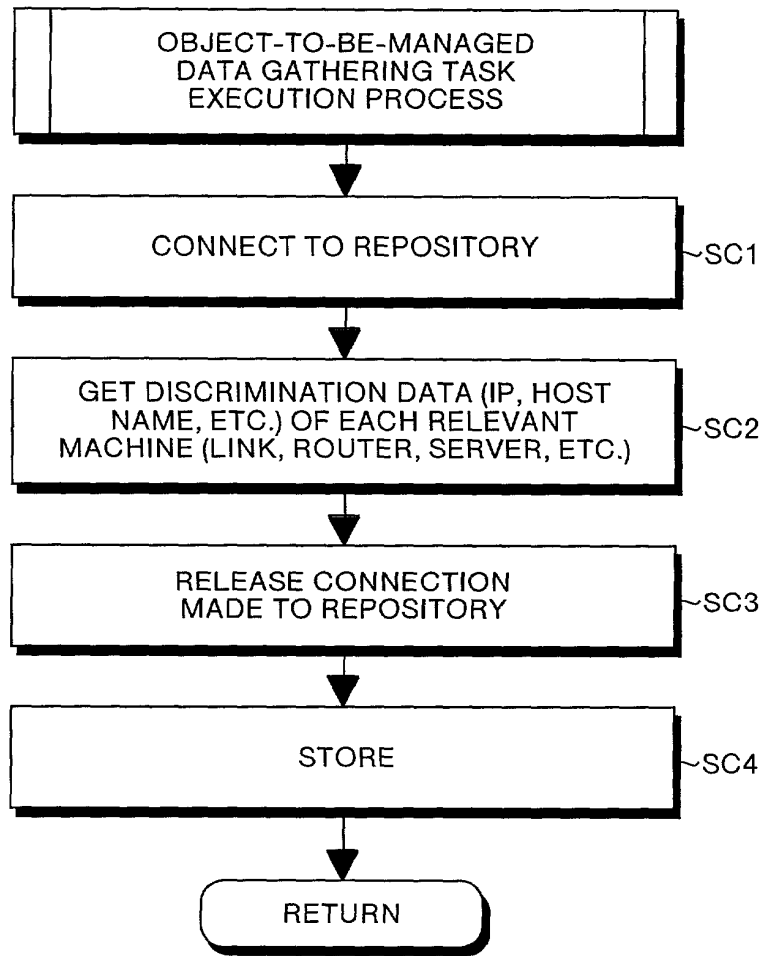


FIG.10



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FIG.11

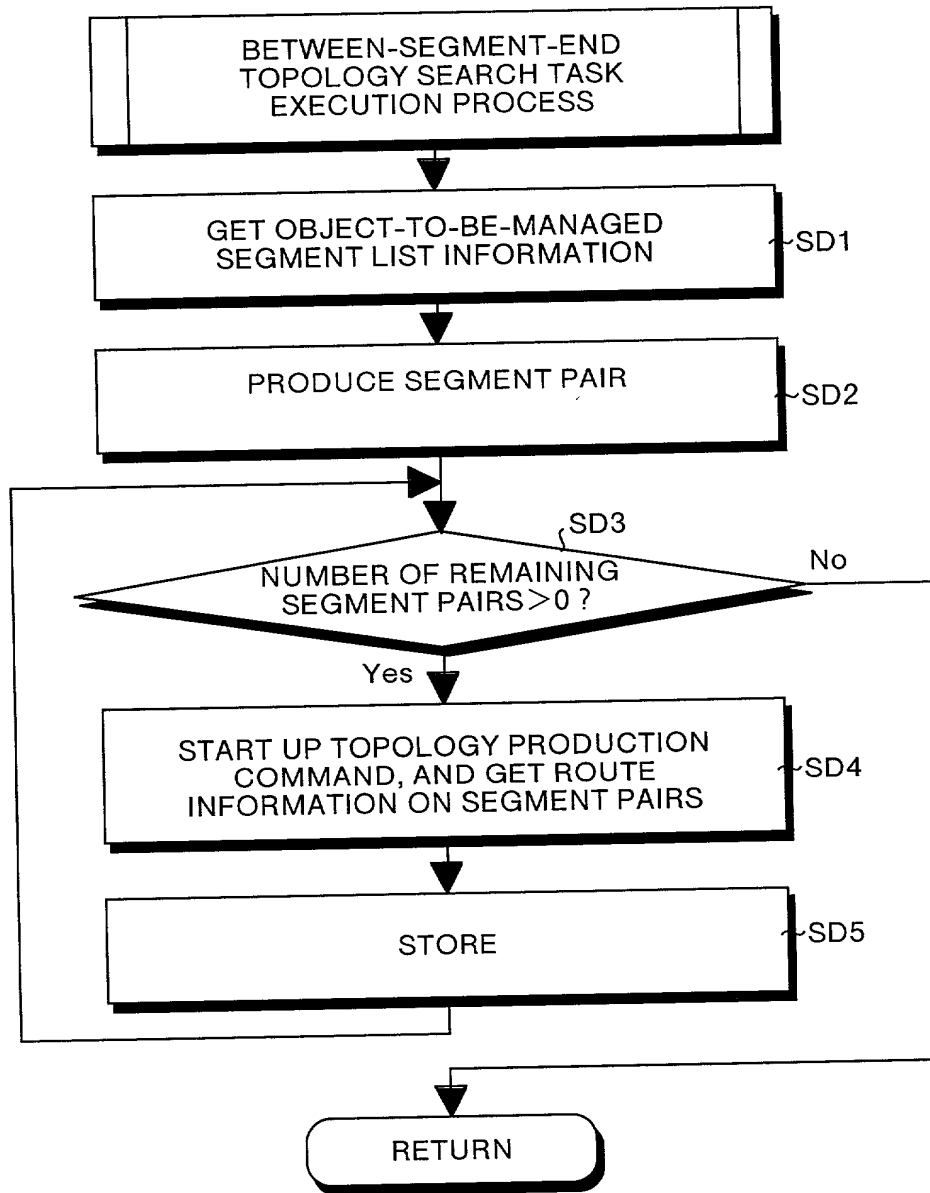


FIG.12

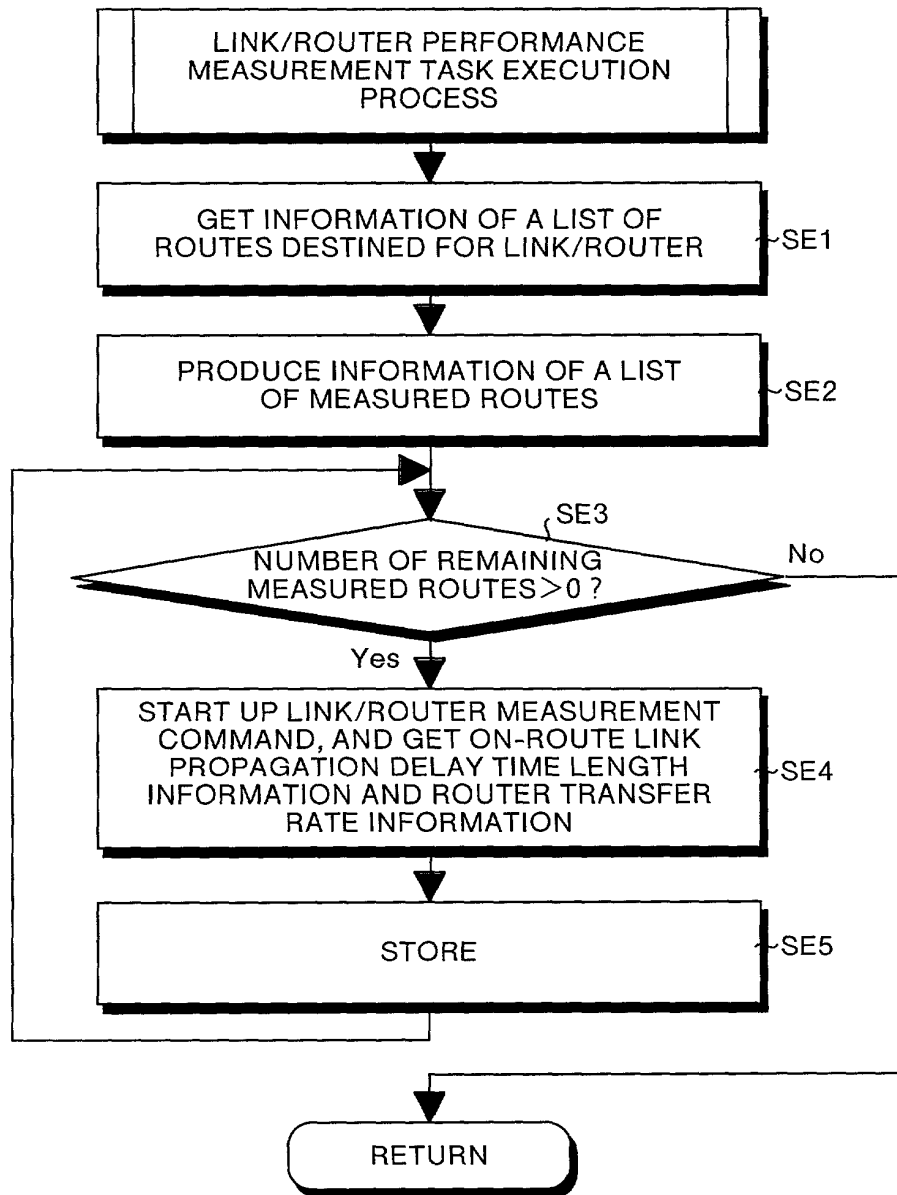


FIG.13

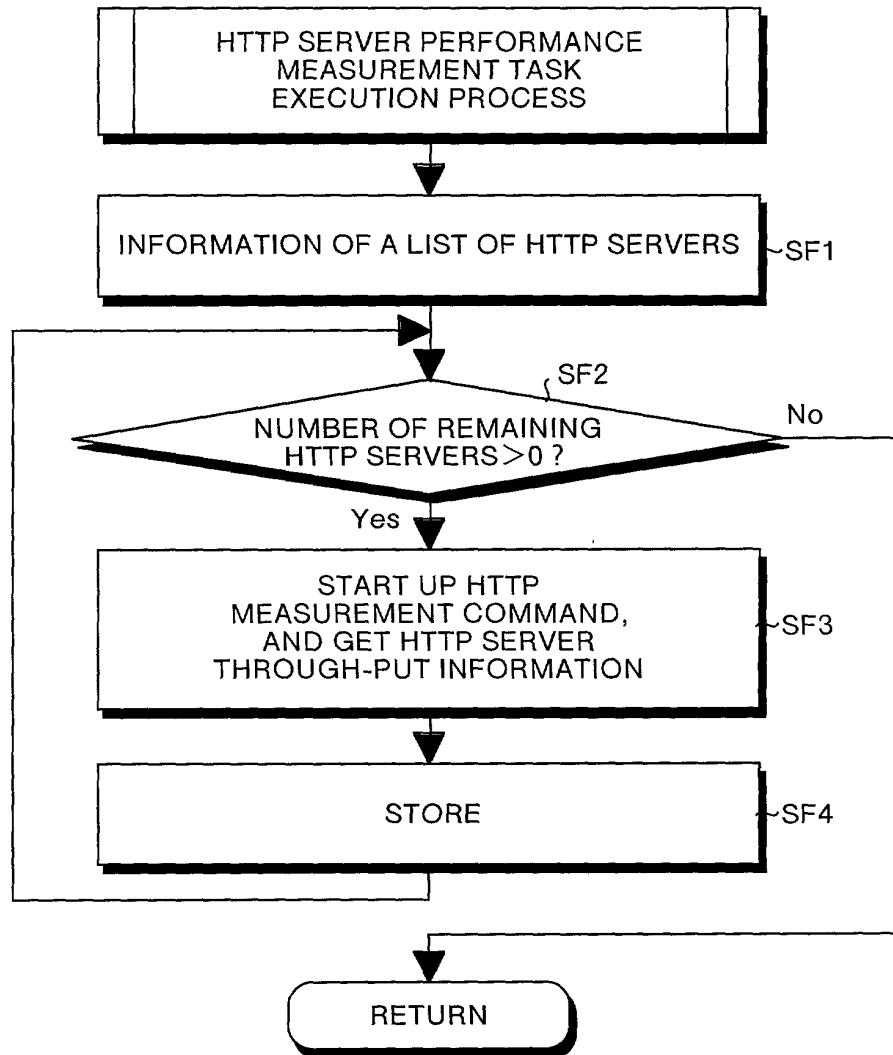


FIG.14

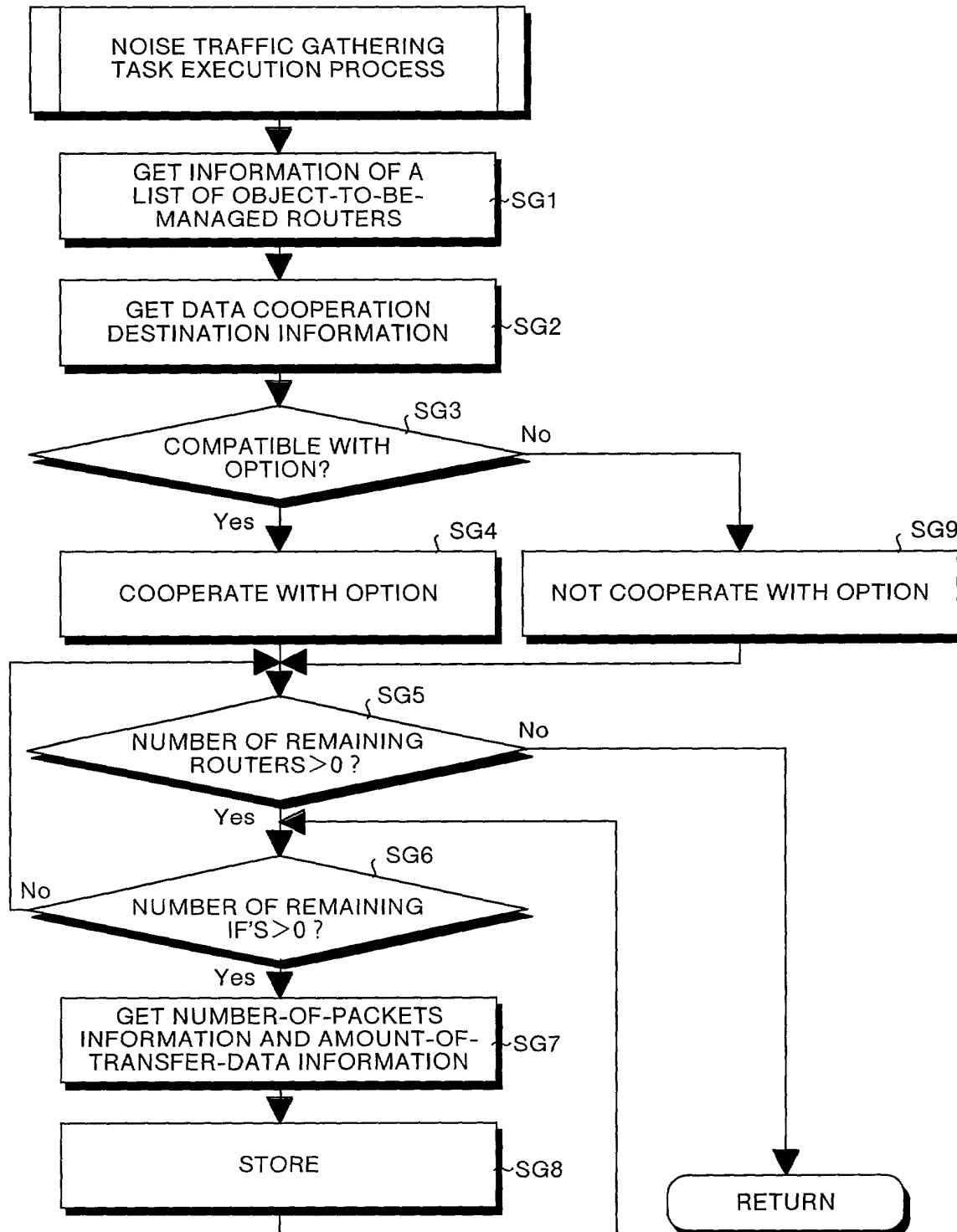
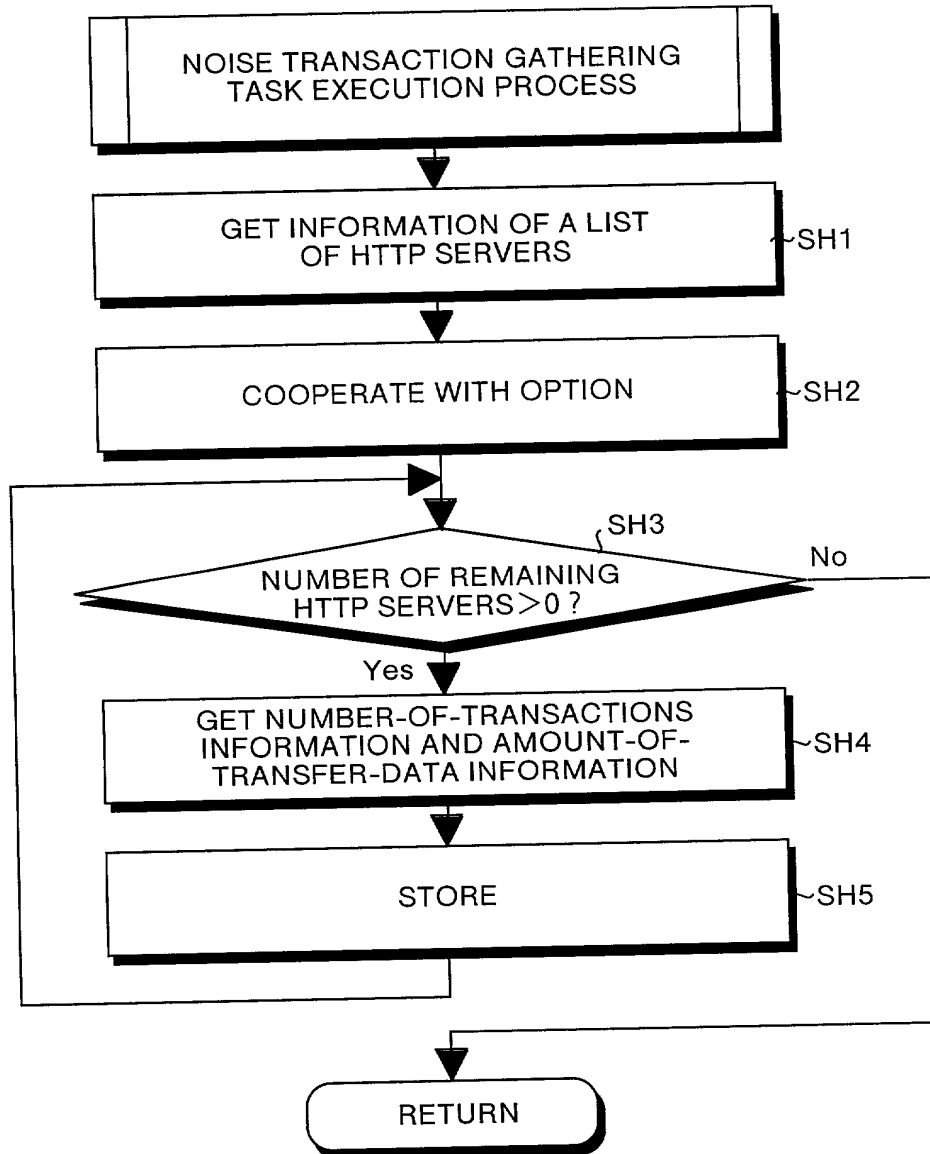


FIG.15



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FIG.16

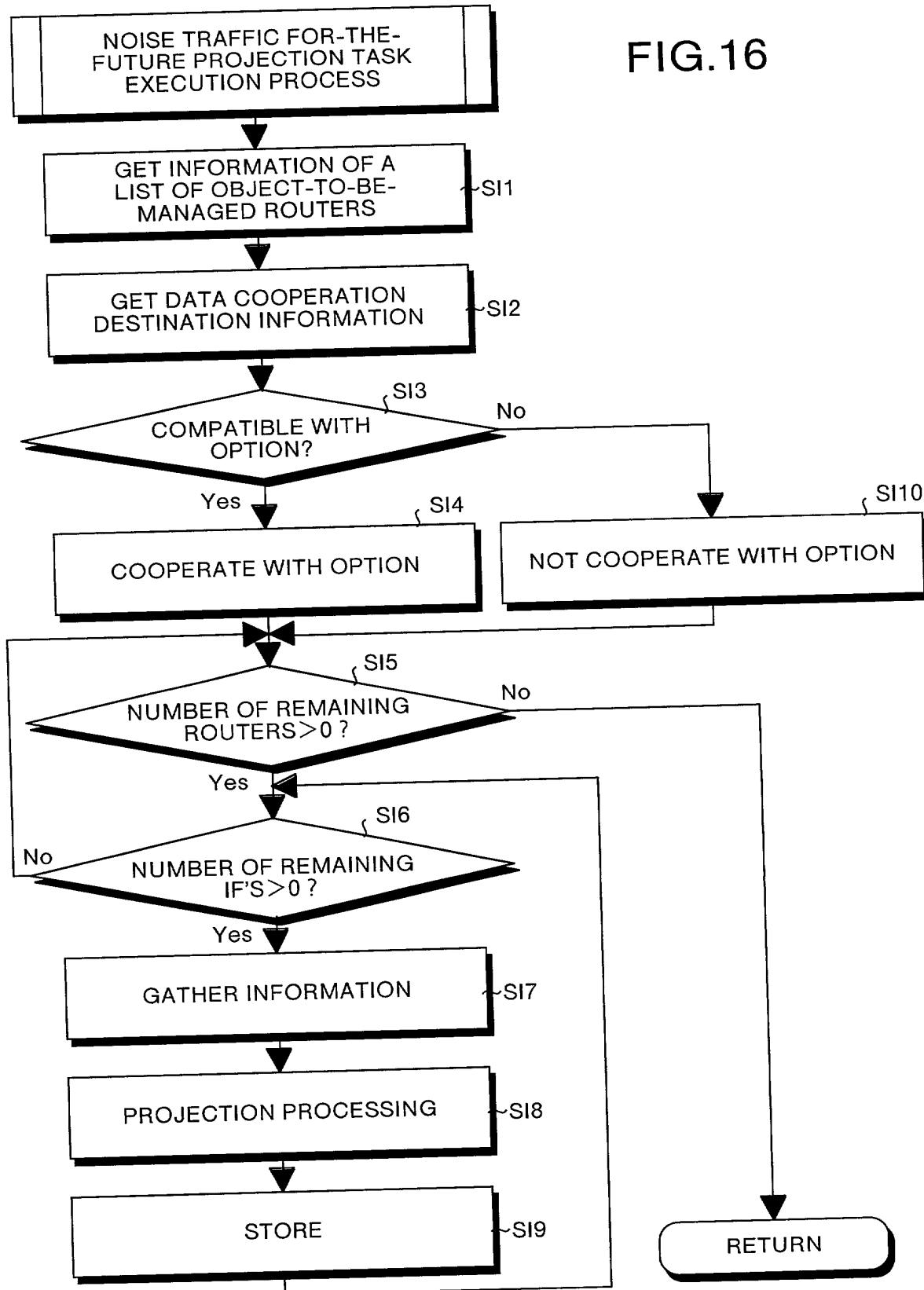


FIG.17

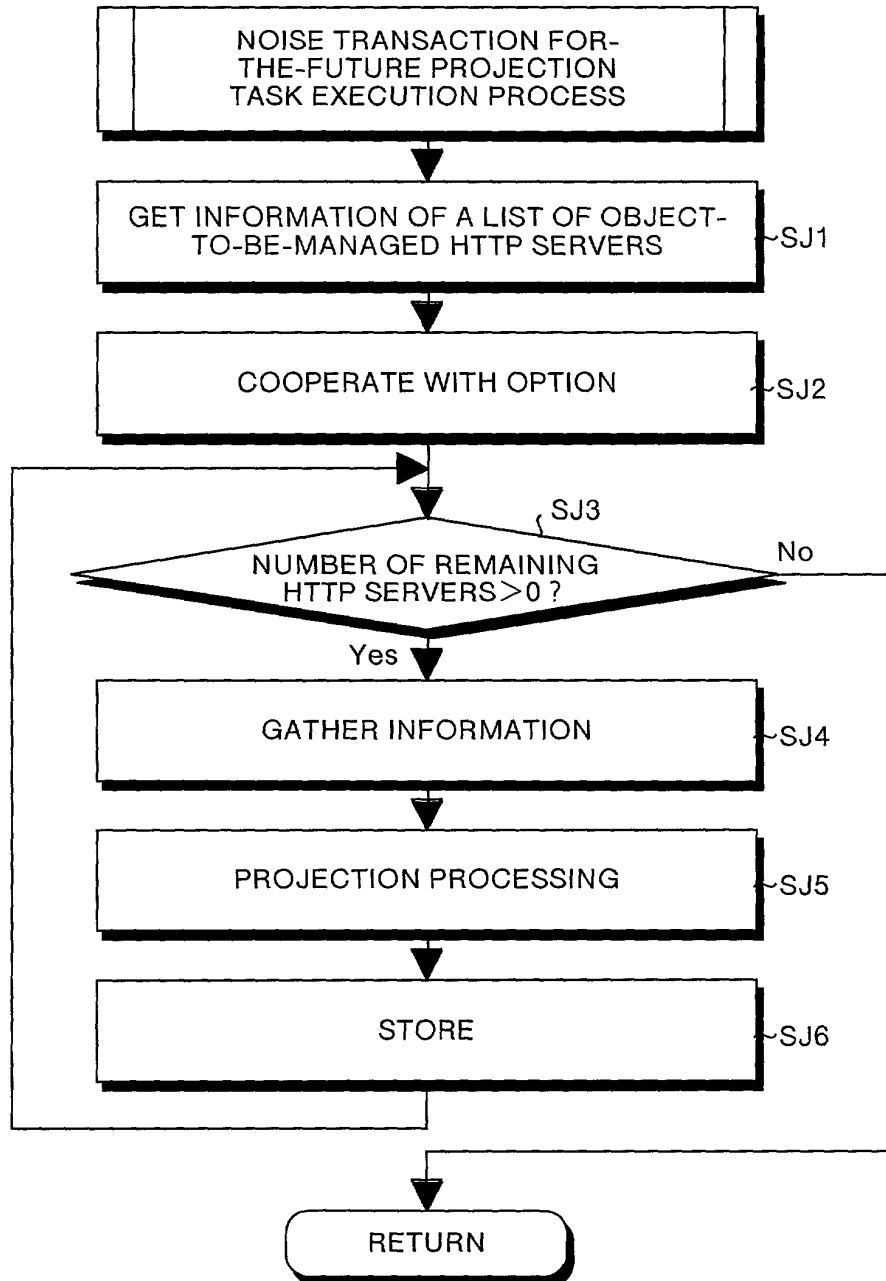


FIG.18

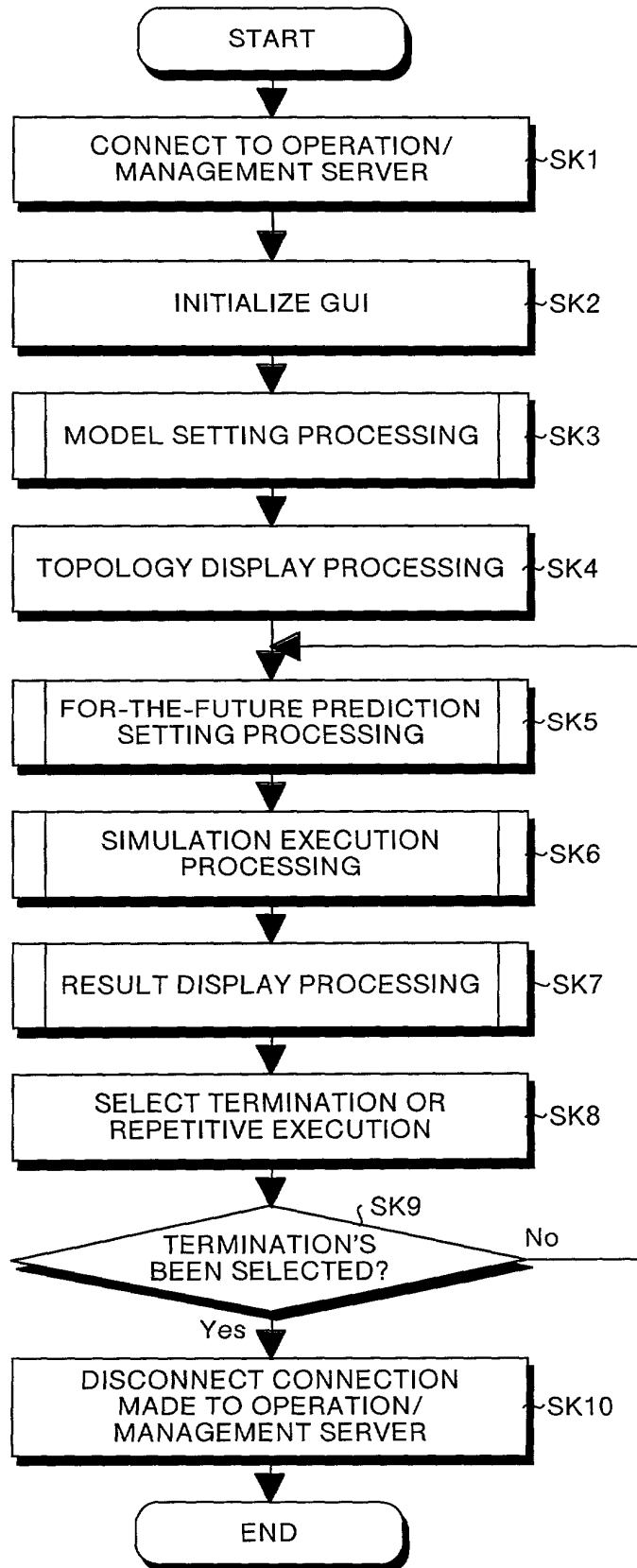


FIG.19

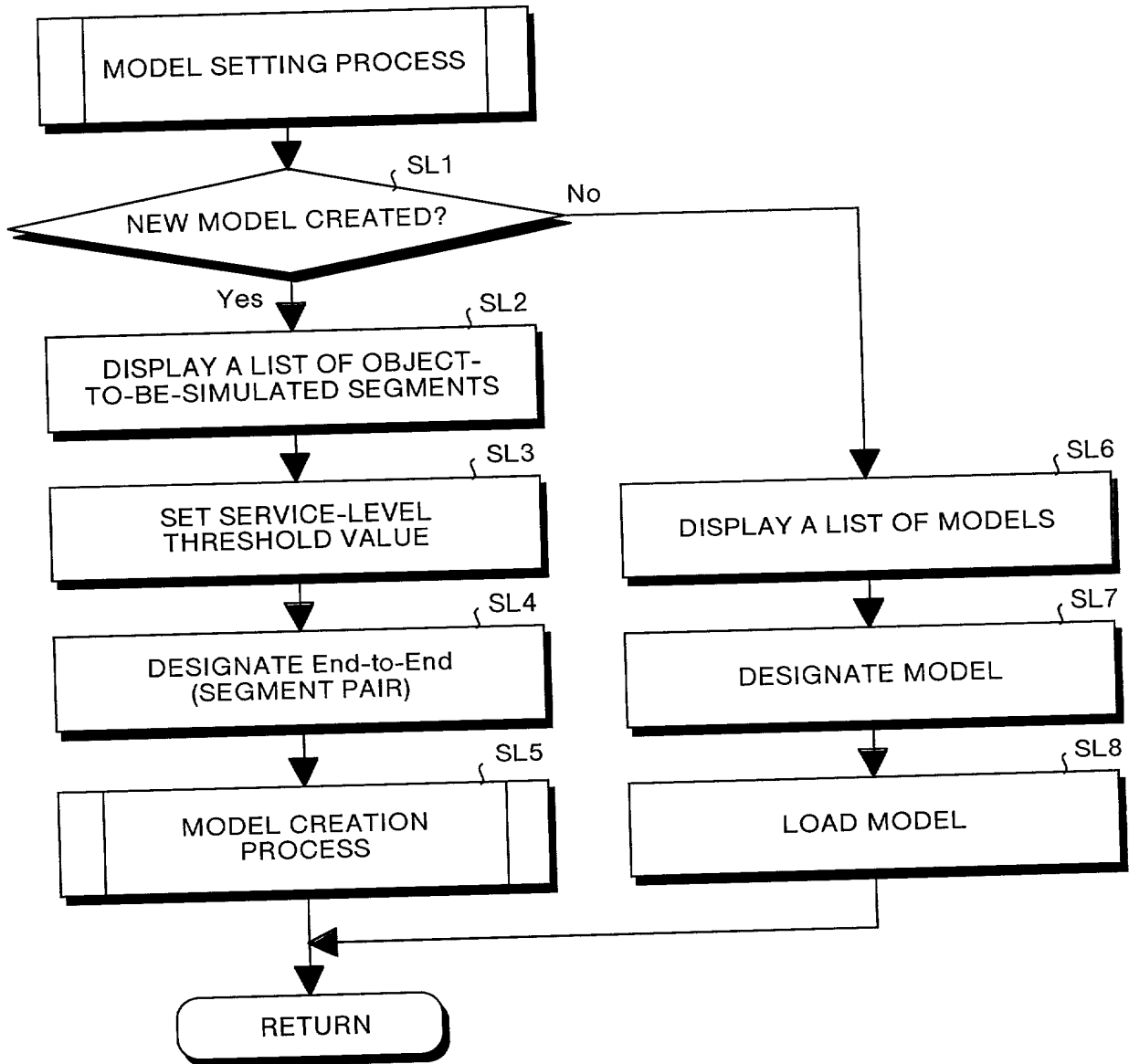


FIG.20

700

701

PRODUCTION OF NEW PROJECT

PROJECT NAME

PROJECT NAME : default_project

PREDICTION TIME LENGTH

DAY OF THE WEEK

WEEKDAY ▼

702

TIME

13:00-14:00 ▼

703

704

RETURN NEXT CANCEL COMPLETE HELP

The figure shows a graphical user interface window titled "PRODUCTION OF NEW PROJECT". The window has a standard title bar with a close button in the top right corner. Inside the window, there are two main sections. The first section is labeled "PROJECT NAME" and contains a text input field with the value "default_project". The second section is labeled "PREDICTION TIME LENGTH" and contains two sub-sections: "DAY OF THE WEEK" with a dropdown menu showing "WEEKDAY" and a "TIME" dropdown menu showing "13:00-14:00". At the bottom of the window, there is a row of five buttons: "RETURN", "NEXT", "CANCEL", "COMPLETE", and "HELP".

FIG.21

710

PRODUCTION OF NEW PROJECT

LIST OF SEGMENTS

713

ADD ALL ADD

LIST OF OBJECT-TO-BE-DEPICTED SEGMENTS

10.34.195.0
10.34.194.0

DELETE ALL DELETE

RETURN NEXT CANCEL COMPLETE HELP

712

711

FIG.22

720

PRODUCTION OF NEW PROJECT

RESPONSE STANDARD VALUE

721

THAT 90 % OF A TOTAL NUMBER OF
SAMPLES FALL WITHIN THE RESPONSE
TIME OF 0.126 SECOND IS HANDLED
AS THE STANDARD 722

723

RETURN NEXT CANCEL COMPLETE HELP

FIG.23

730

PRODUCTION OF NEW PROJECT

JOB SERVER
JOB SERVER LIST 731

astro

CLIENT
CLIENT'S SIDE SEGMENT LIST

10.34.195.0
10.34.194.0 732

CLIENT'S NAME 0.34.195.0_client_astro

733

THAT 90 % OF A TOTAL NUMBER OF SAMPLES FALL WITHIN
THE RESPONSE TIME OF 0.126| SECOND IS HANDLED AS THE
STANDARD 734

735

10.34.194.0:astro-10.34.195.0:10.34.195.0_client_astro-0.126sec

ADD 736

DELETE 737

EDIT 738

RETURN NEXT CANCEL COMPLETE HELP

FIG.24

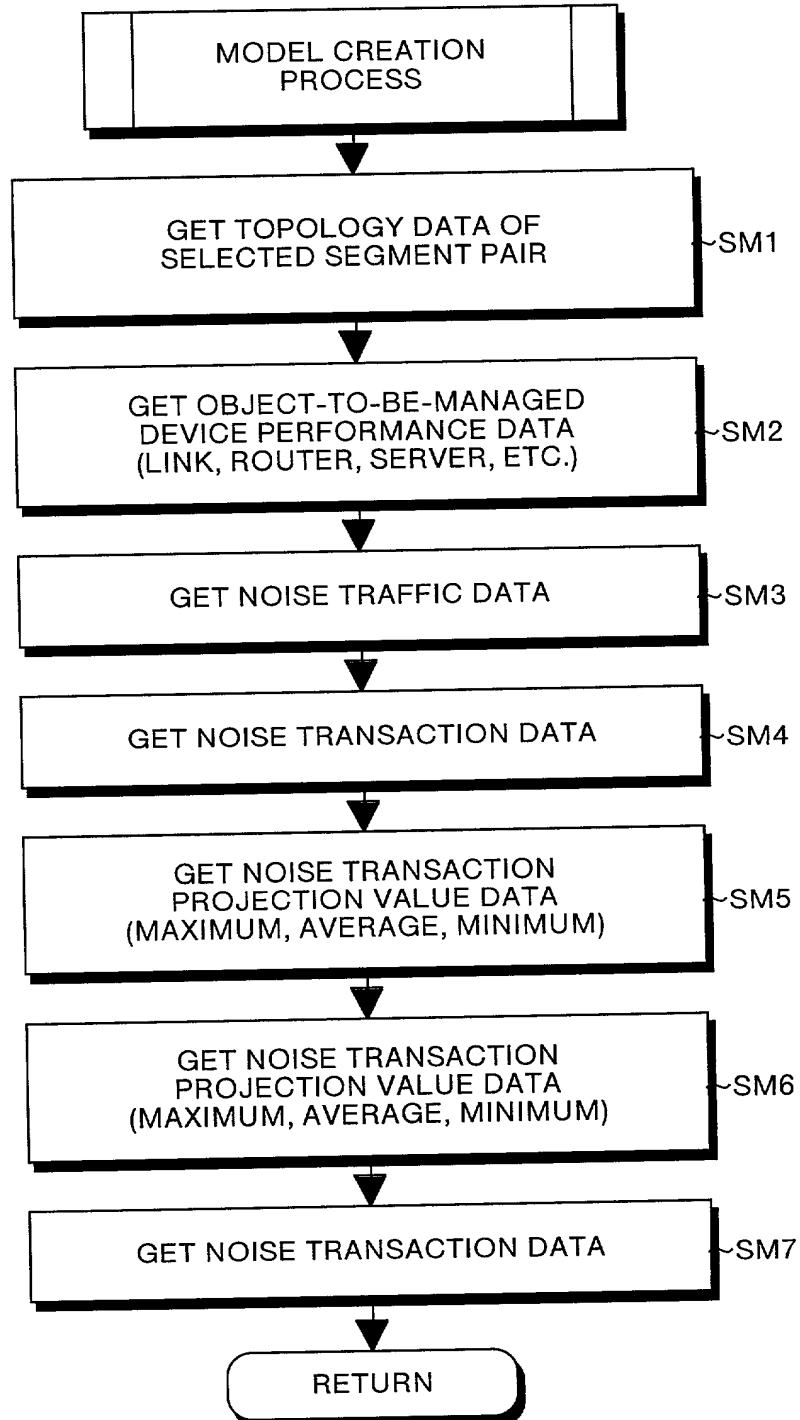


FIG.25

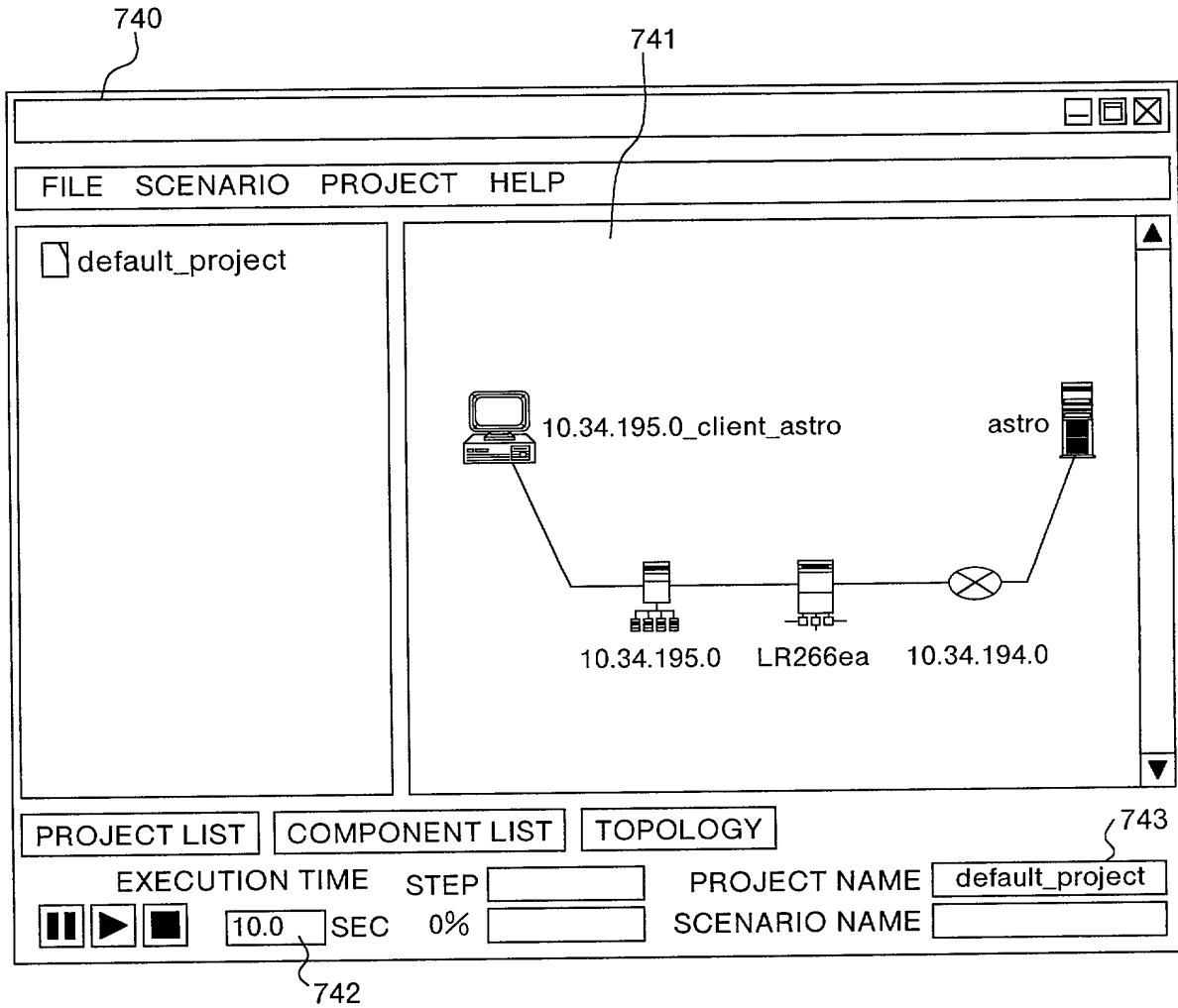


FIG.26

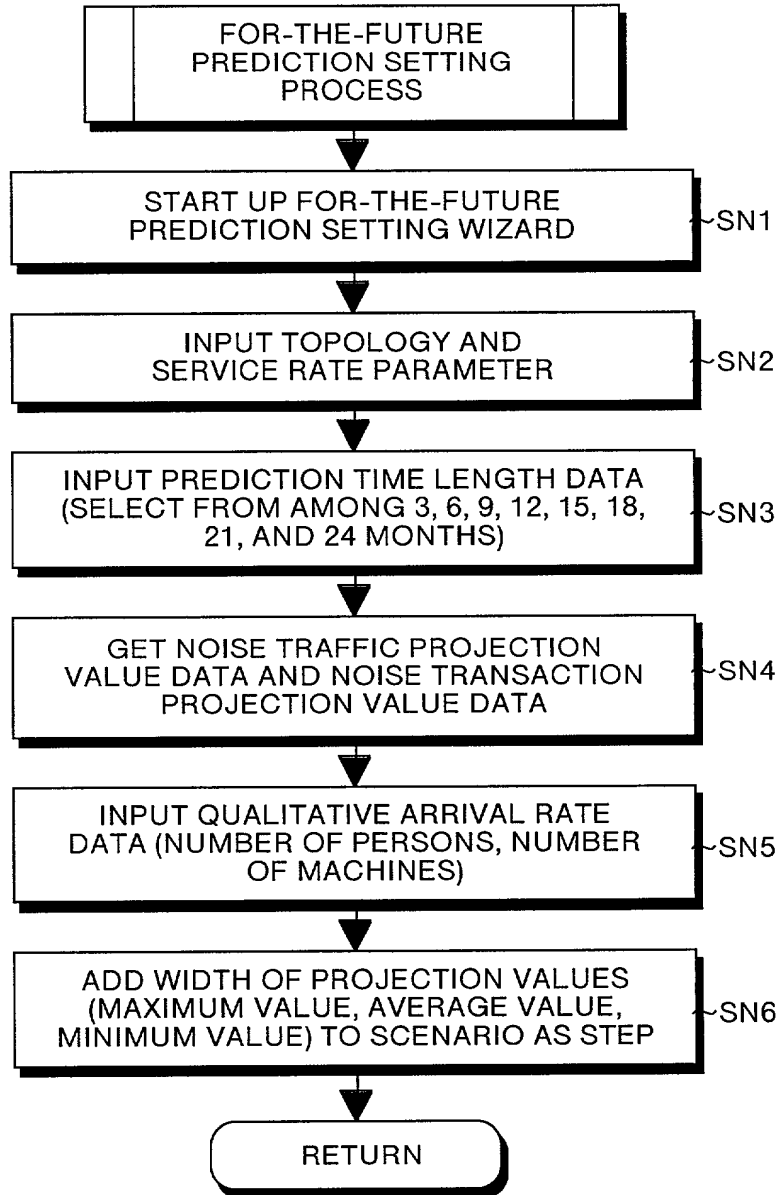


FIG.27

750

751

752

753

754

PRODUCTION OF NEW SCENARIO

SCENARIO NAME

SCENARIO NAME : default_scenario

NOISE AUTO PREDICTION

NOISE AUTO PREDICTION MODE ☒ ON ☐ OFF

PREDICTION TIME LENGTH

3 MONTHS ▼

RETURN NEXT CANCEL COMPLETE HELP

FIG.28

760

PRODUCTION OF NEW SCENARIO

NOISE TRAFFIC

SEGMENT NAME	ROUTER NAME	OPTIMISTIC -VIEW VALUE	PROJECTION VALUE	PESSIMISTIC -VIEW VALUE	CORRELATION COEFFICIENT	DAYS NUMBER
10.34.1...	LR266ea	0.0	100.0	200.0	0.5	100
10.34.1...	LR266ea	0.0	100.0	200.0	0.5	200

NOISE TRANSACTION

SEGMENT NAME	SERVER NAME	OPTIMISTIC -VIEW VALUE	PROJECTION VALUE	PESSIMISTIC -VIEW VALUE	CORRELATION COEFFICIENT	DAYS NUMBER
10.34.1...	astro	-100.0	-80.0	-60.0	-0.5	100

RETURN

NEXT

CANCEL

COMPLETE

HELP

763

FIG.29

770

PRODUCTION OF NEW SCENARIO

☒ SET PER SERVER ☐ SET PER SERVER CLIENT 771

astro

772

SET NUMBER OF JOB ACCESSES

773 { ☒ SINGLE PERSON USES A SINGLE MACHINE CLIENT
☐ PLURALITY OF PERSONS USE A SINGLE MACHINE CLIENT

NUMBER OF MACHINE CLIENTS : 1 774

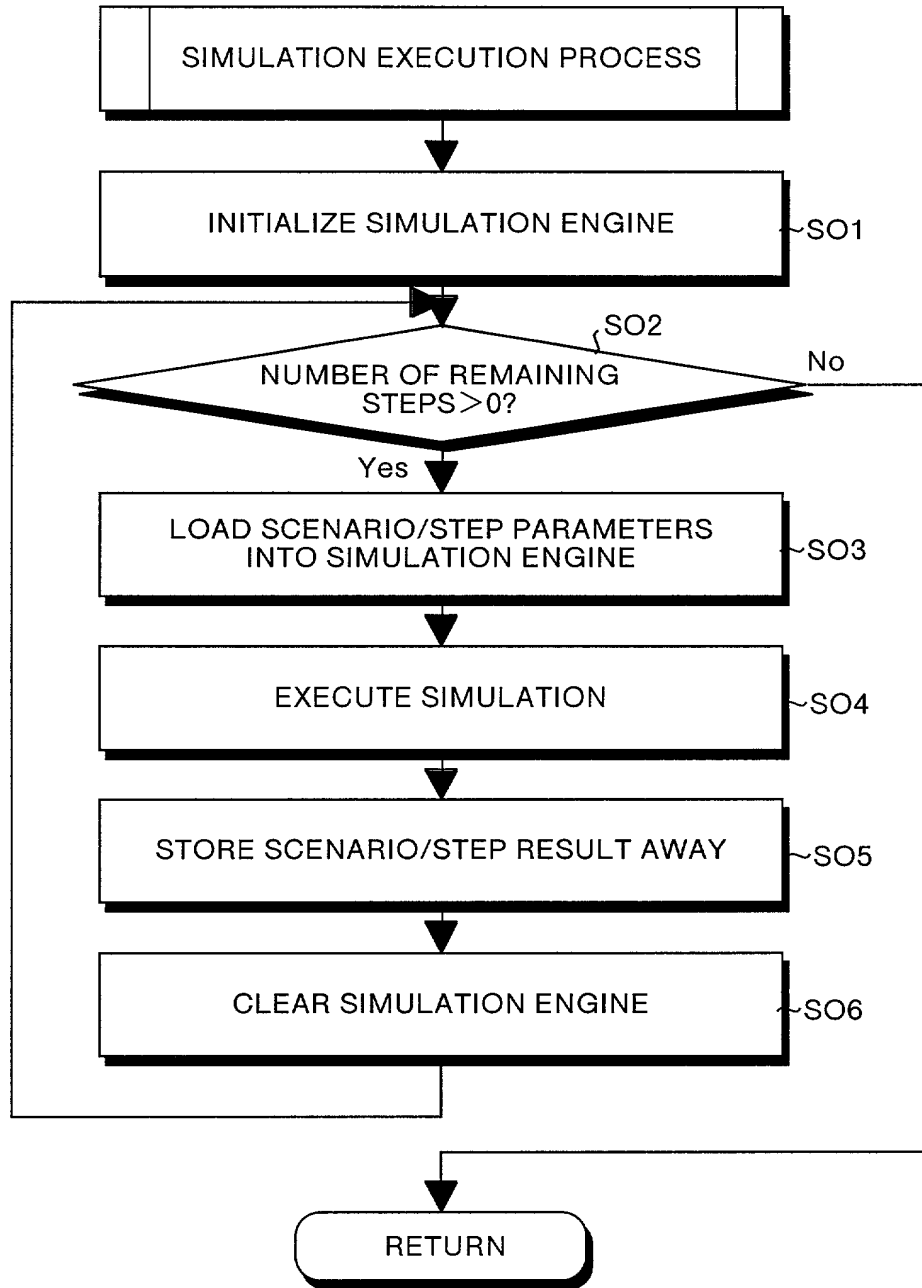
NUMBER OF PERSONS : 1 775

NUMBER OF ACCESSES: 10 776

IN CASE OF cgi: 0.0 777

RETURN NEXT CANCEL COMPLETE HELP

FIG.30



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FIG.31

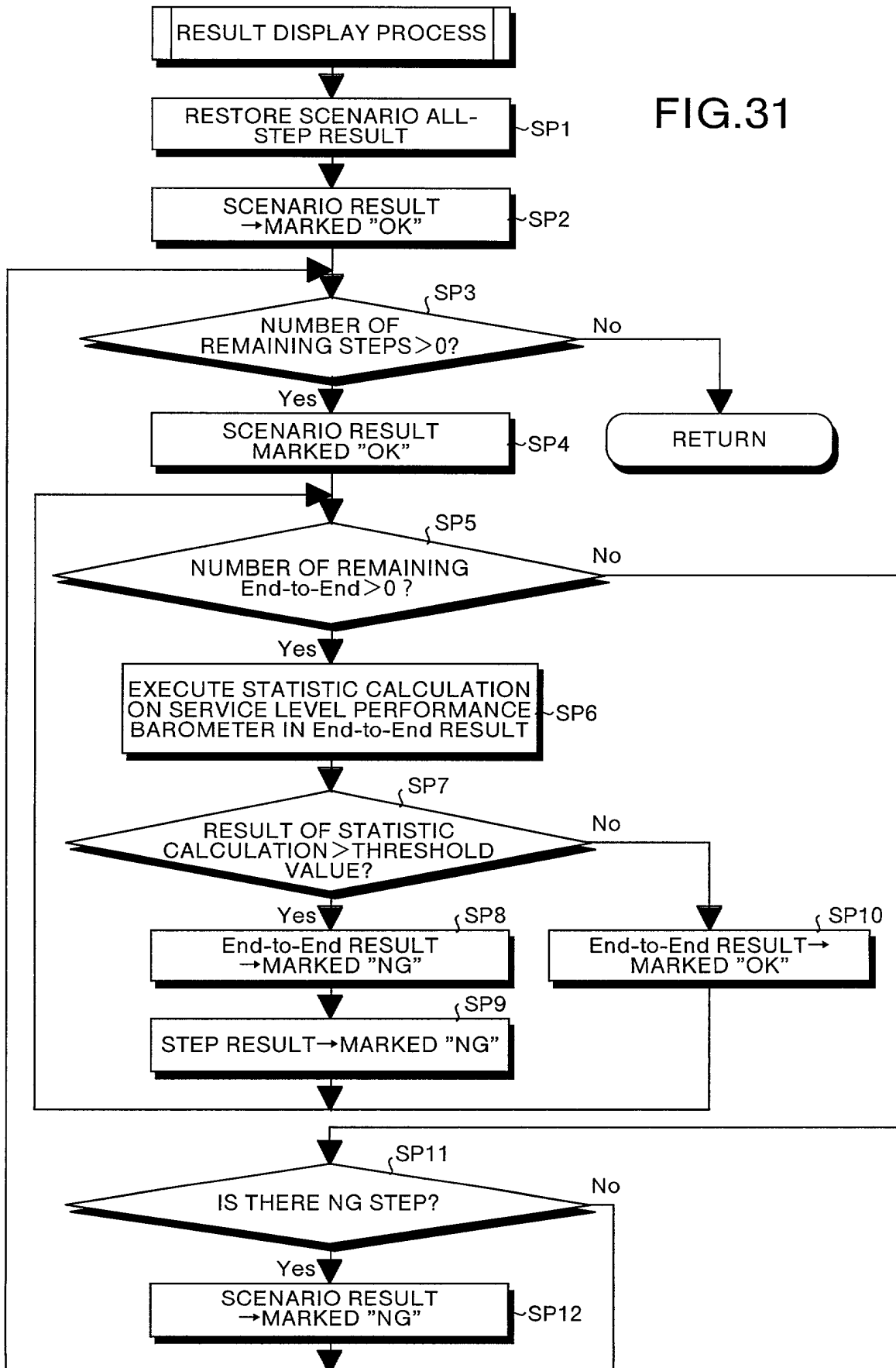


FIG.32

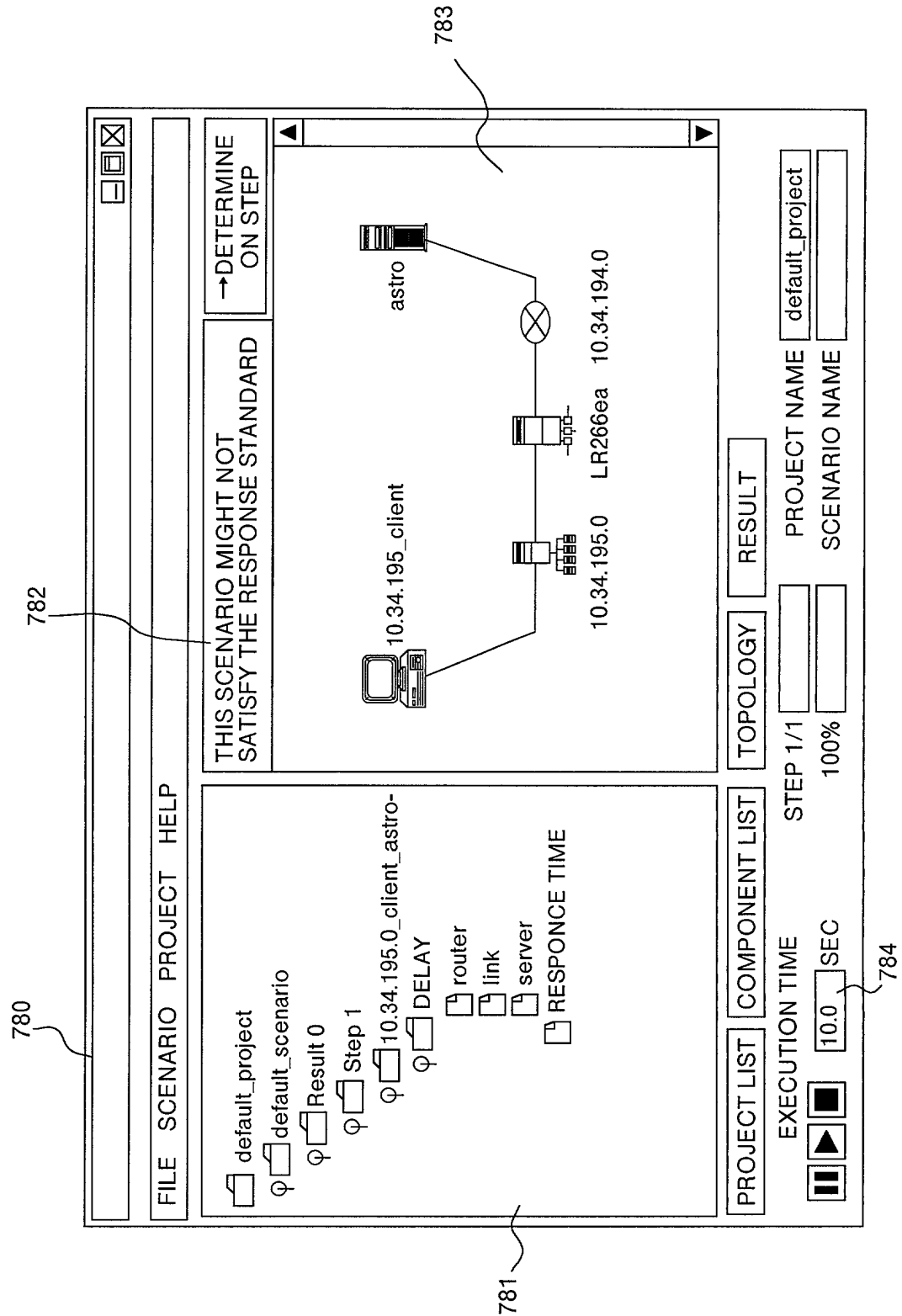


FIG.33

790 791

FILE SCENARIO PROJECT HELP

default_project
default_scenario
Result 0
Step 1
10.34.195.0_client_astro-
DELAY
router
link
server
RESPONSE TIME

DETERMINE ON STEP

SEQUENTIAL ORDER	NOISE TRAFFIC	CALCULATION TIME LENGTH	DETERMINATION	NUMBER OF NG'S
1	auto map	10.0	NG	1/1

TO END-TO-END DETERMINATION

792

793

PROJECT LIST COMPONENT LIST

EXECUTION TIME
STEP 1/1
100%
10.0 SEC

PROJECT NAME
default_project

SCENARIO NAME
default_scenario

TOPOLOGY RESULT

FIG.34

800

801

FILE SCENARIO PROJECT HELP

default_project
default_scenario
Result 0
Step 1
10.34.195.0_client_astro-
DELAY
router
link
server
RESPONSE TIME

END TO END DETERMINATION

SEQUENTIAL ORDER	JOB NAME	DETERMINATION	MAX-IMUM R	AVERAGE R	MIN-IMUM R	PERCENTILE
1	10.34	NG	0.130	0.126	0.124	0.0

←TO PREVIOUS IMAGE SCREEN

TO GRAPH 803
rTime TO GRAPH 804

802

PROJECT LIST COMPONENT LIST

EXECUTION TIME STEP 1/1 PROJECT NAME default_project
100% 10.0 SEC SCENARIO NAME default_scenario

FIG.35

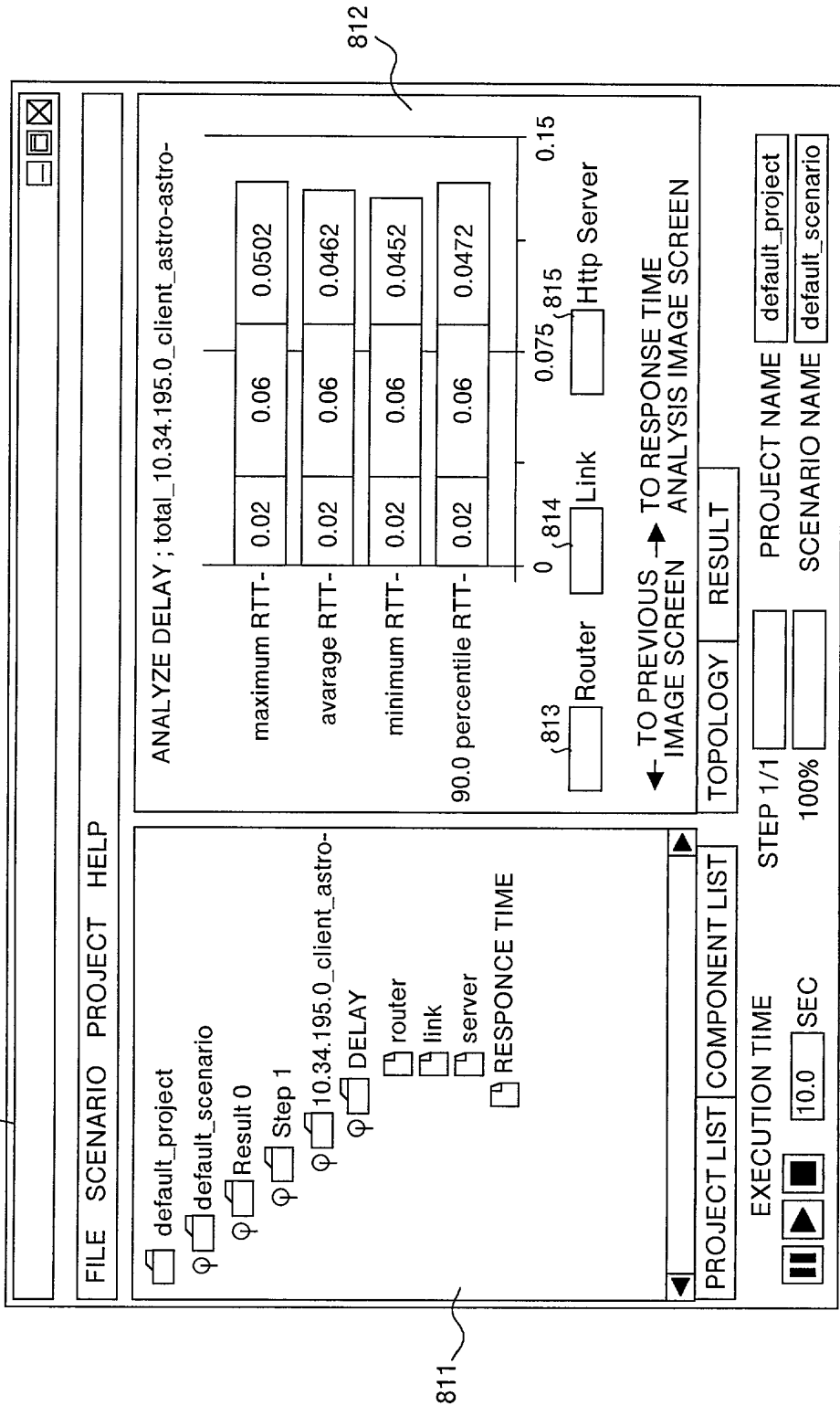
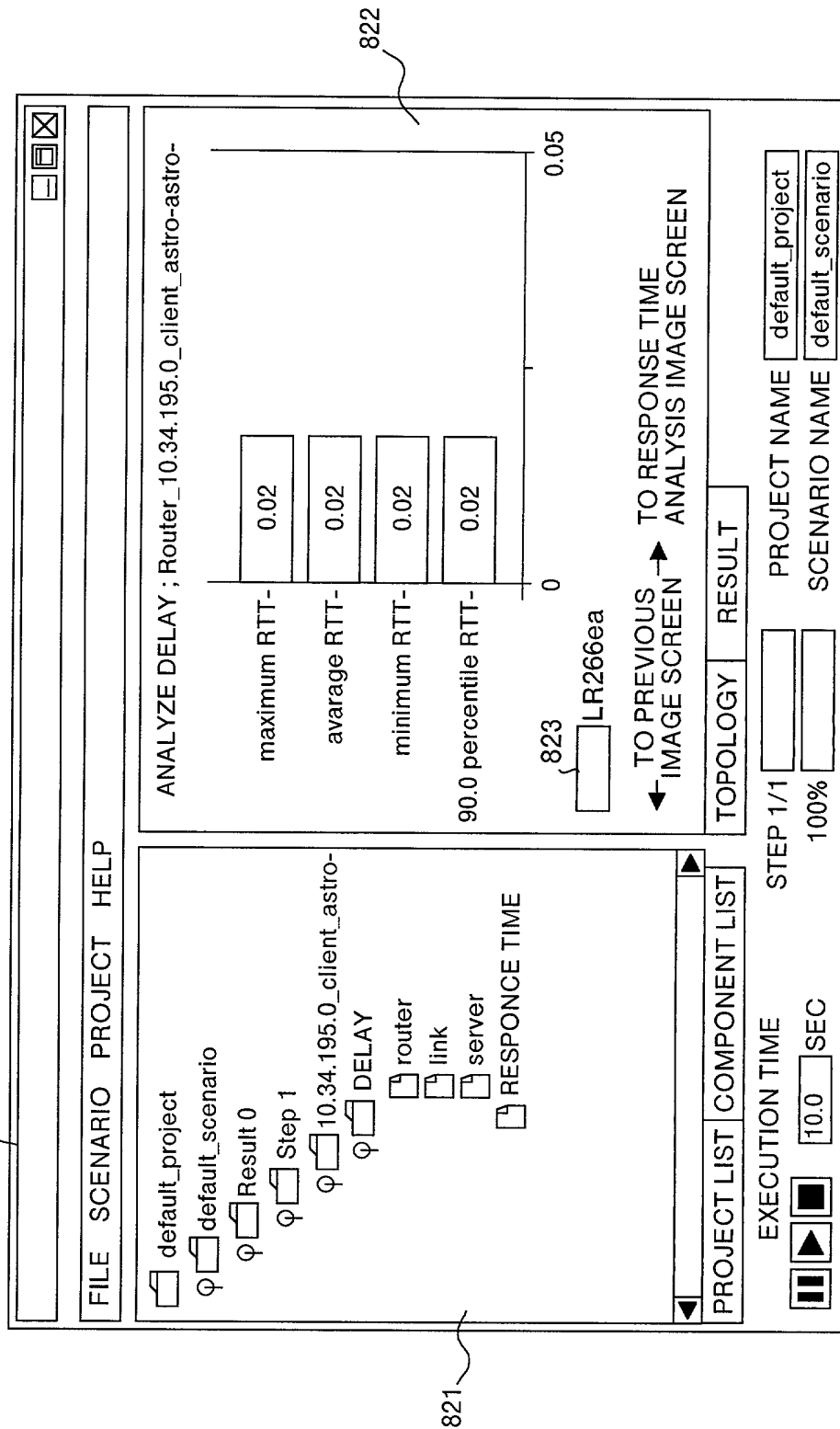


FIG.36



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FIG.37

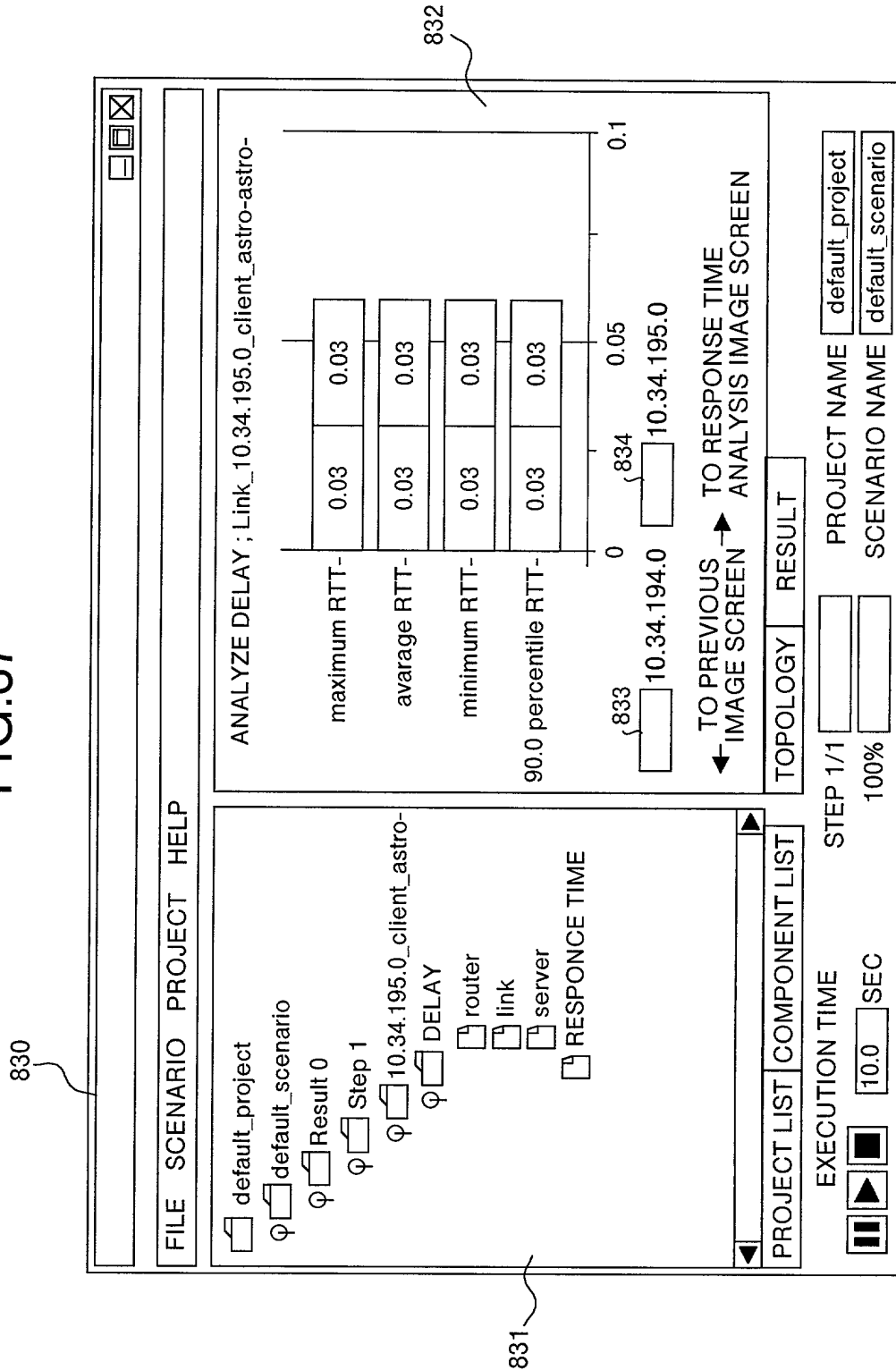


FIG.38

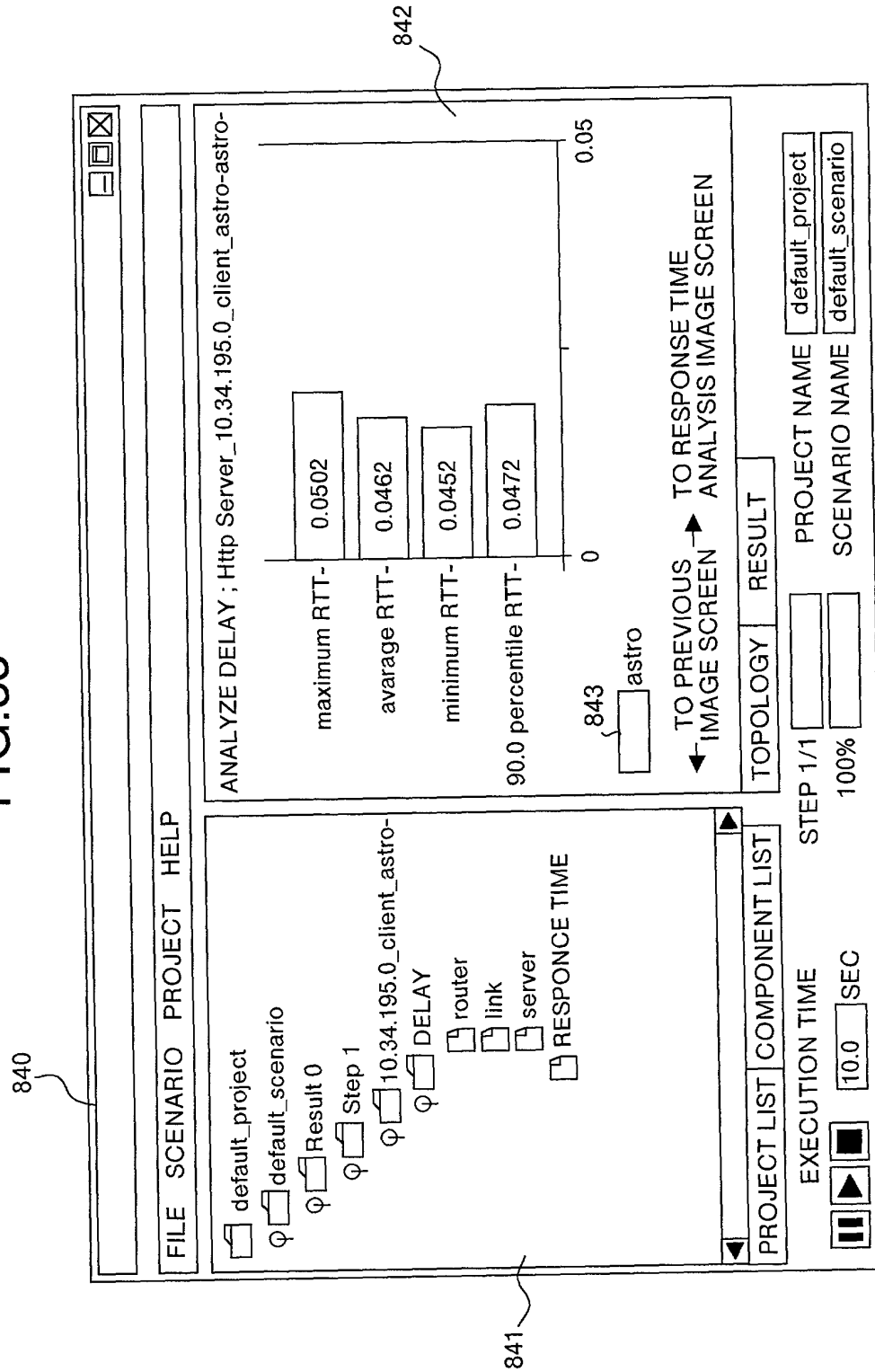


FIG.39

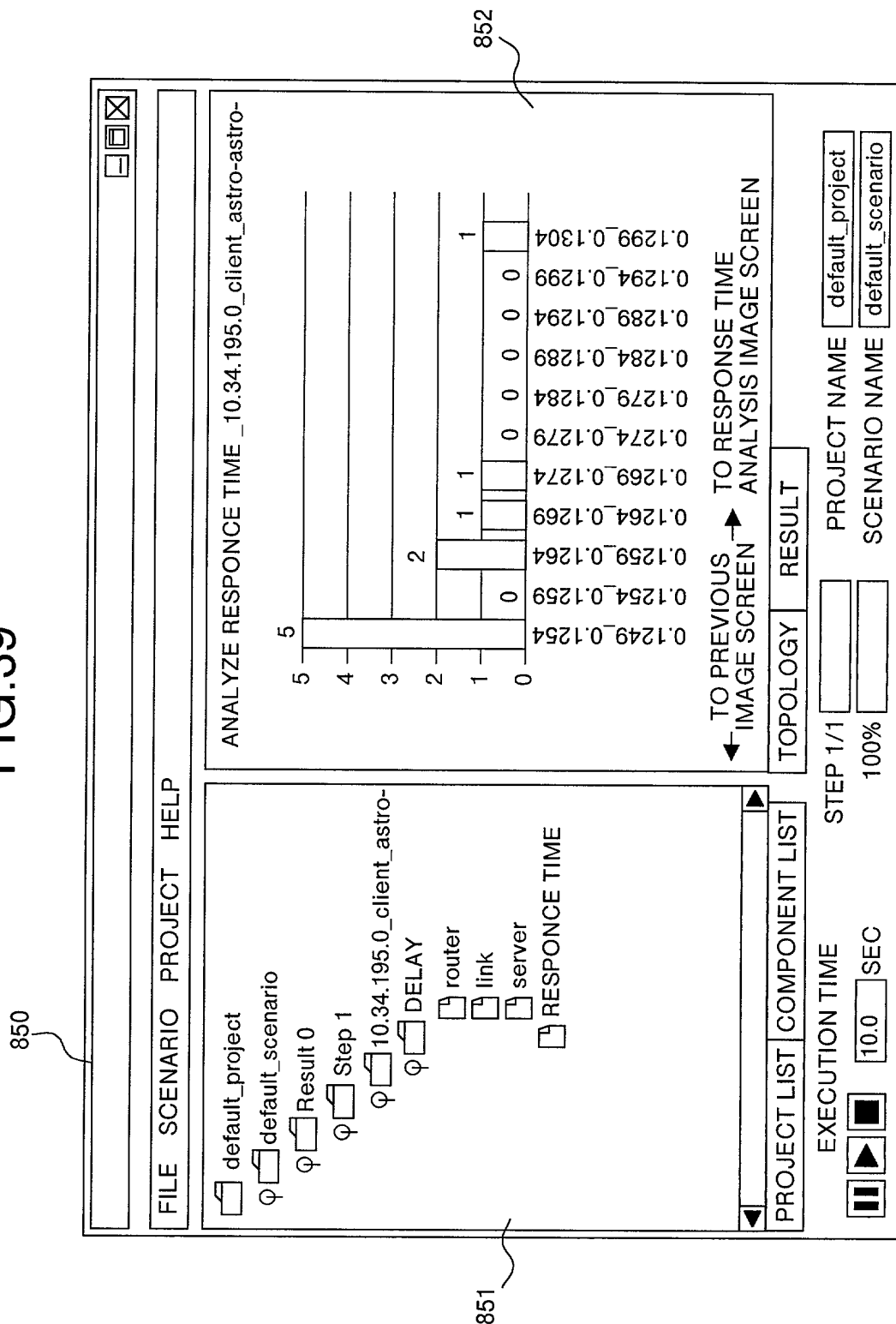


FIG.40

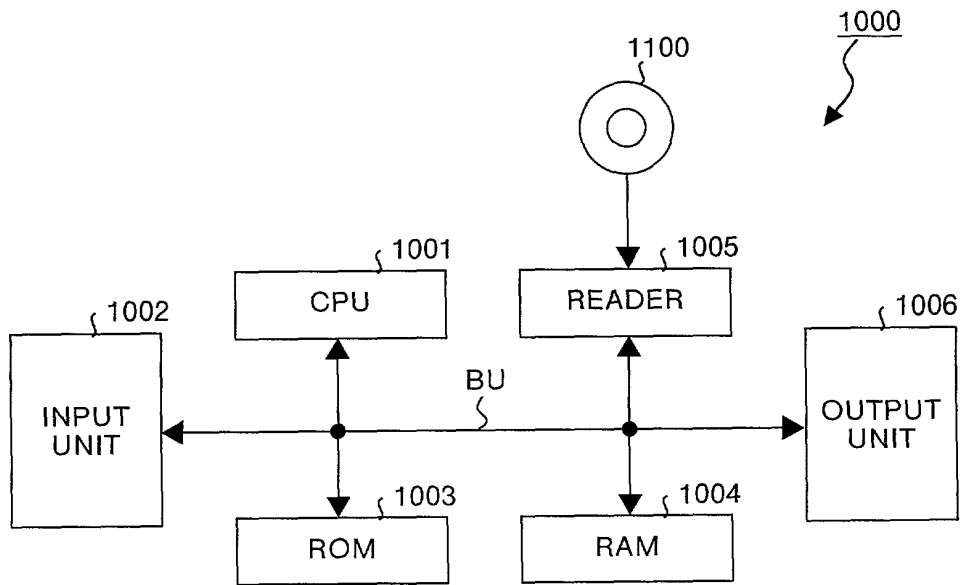
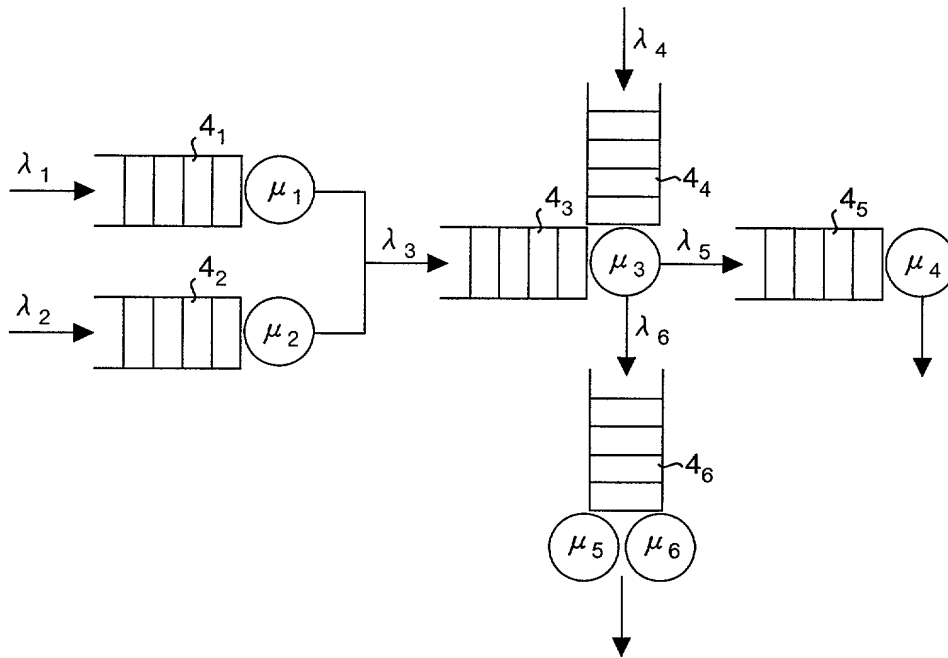


FIG.41



INTRODUCTORY REMARKS

→ ENTITY FLOW

○ RESOURCE

Waiting Queue

$\lambda_1 \sim \lambda_6$ ENTITY ARRIVAL RATE

$\mu_1 \sim \mu_6$ RESOURCE SERVICE RATE

FIG.42

